

# A Three Way Win

Collaborative Design as a mechanism for successful Knowledge Transfer and Exchange,  
enhancing student employability and adding value to the student experience

*Presented by:*

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*Teesside University*

# Today's Presentation

- Project Background

  - The Partnership Challenge

- Introducing the company

  - Halo Thermal Imaging (K2 Thermal Imaging)

- A new type of placement?

- Student Placement Case Study

- Three way win and shared Benefits

- Where next

# “The Partnership Challenge”

**Q. How do you convince companies that working with a university is a good idea?**

**Q. How do you show that it will**

- ... pay dividends?**
- ... be worth the time invested?**
- ... be cost effective?**

**It can be something of a perennial problem!**

Companies don't always see the benefit of working with and partnering a university, or

They see the benefit but expect it to be free and not a partnership of mutual benefits

# Working With Business Programme

Teesside university has operated the Working with Business Programme for several years to encourage academics to develop relationships with the business community.

The programme has 2 levels:

- **Mentored Challenge** for staff with limited/no experience of working with business who are at an early stage of their career in teaching and/or research.
- **Partnership Challenge** is aimed at experienced staff and should have the potential to provide significant business, offer the prospect of a long-term commercial relationship for the University or provide a route to a new sector.

**Funding Support** of up to £7000 is available

# Working With Business Programme

In real terms the funding support

- **frees up time** to spend with a company
- Offers freedom **to do something “interesting”** that would be difficult to fund from other sources

## **My previous experience of the Mentored Challenge in 2013**

- Worked with a furniture manufacturing company
- Opened a conversation over an extended period
- and now we are developing a 2 year KTP proposal around that initial work

# The Partnership Challenge

I applied for funding for the 2014 Mentored Challenge

**The Company** - Halo Thermal Imaging, Darlington (K2)

**Funding** - £4000 awarded

**Duration** - March – Sept 2014

our first discussions had been 12 months earlier

**Supported**

- 60 hours academic time
- Student factory visit
- Materials for prototyping
- Company time

- Halo are a Darlington based manufacturer.
- They develop and manufacture highly specialist Thermal Imaging Solutions, selling their products internationally for,
- fire fighting, search and rescue and surveillance operations.
- K2 helmets are also used by F1 teams, NASA and on cruise ships.



http://www.halothermalimaging.co.uk/products/soloti/ Thermal Imaging Fire Hel...

Channels 6 Team Beautiful Life - design ne... BIM Regional Hub North ... cargo bikes work bikes chi... Cast Metal Rapid Prototyp... Co-Design And Porsche Br... Design Means Business - ...

halo  
THERMAL IMAGING

MENU

Crystal clear Comms with existing radio, conforms to BS EN 352-3

soloti

The fire helmet that has it all

The ultimate fire helmet with a breathing apparatus mask built-in as standard. For integrated thermal imaging and outstanding communication, this is the helmet for you.

- ✓ Glass fibre/Kevlar® shell-bonded with Class 1 fire-retardant resin and Class 1 Gelcoat
- ✓ Crystal clear Comms with your existing radio
- ✓ Head-Up thermal imaging camera
- ✓ Can be used in conjunction with Dräger, Scott, MSA and other BA-manufacturers
- ✓ Fully-approved, with MED, SOLAS and CE marking
- ✓ Complete head, face and neck protection

http://www.halothermalimaging.co.uk/

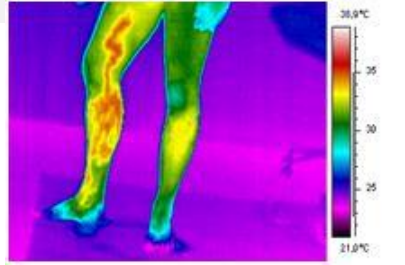
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<http://www.halothermalimaging.co.uk/>

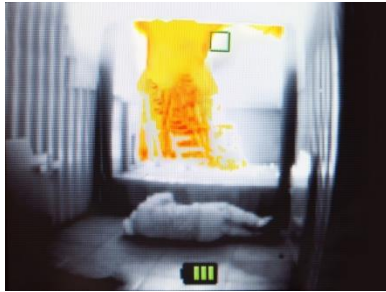
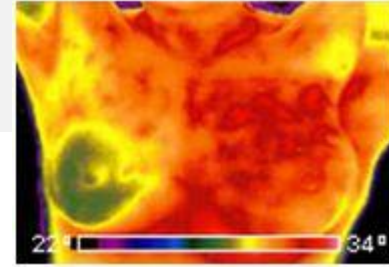
# Thermal Imaging has a multitude of uses...



Rescue



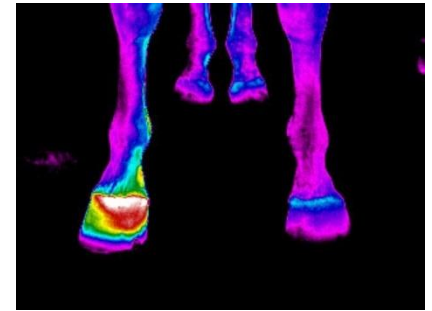
Medical



Fire Fighting



Security/Military



Equine/veterinary



Electrical

Automotive





...and is an essential tool for fire fighters



- Halo TI were previously trading K2/Solo
- Their products were selling well but...
- The SoloTI and Solo helmets had not been refreshed cosmetically for a considerable length of time...

## Solotic



- We started to focus our conversation on how they saw the business going forward
- Including product /market diversification
- They were concerned that competitor products , whilst having less functionality did look more “cool”



# The Partnership Challenge

## **Student Centred Input (live projects)**

Visualisations and outlines for new/improved products

Research and outline strategies for product implementation including basic business models

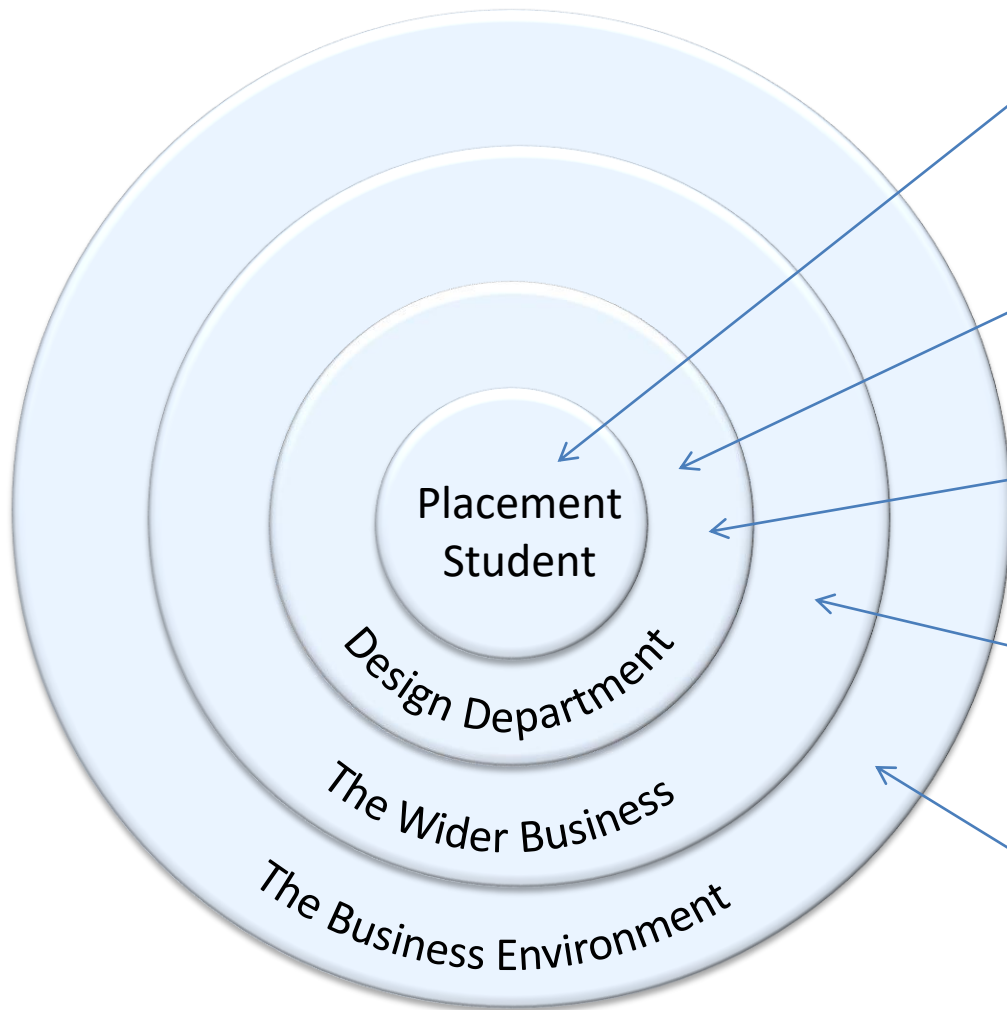
## **Academic Input**

Feasibility assessment with K2 of student concepts and Road mapping strategy for NPD and/or product updating

The company wanted to extend the work into

**Summer Student Placement - 2014**

# Traditional Design Placement



- Student at the heart of the business
- Supported within an “equipped” design department
- Mentored by practising designers
- Able to learn about a specific business and manufacturing sector
- Exposed to issues in the wider business and its marketing environment

# A New Type of Placement ?...

## The Problem:

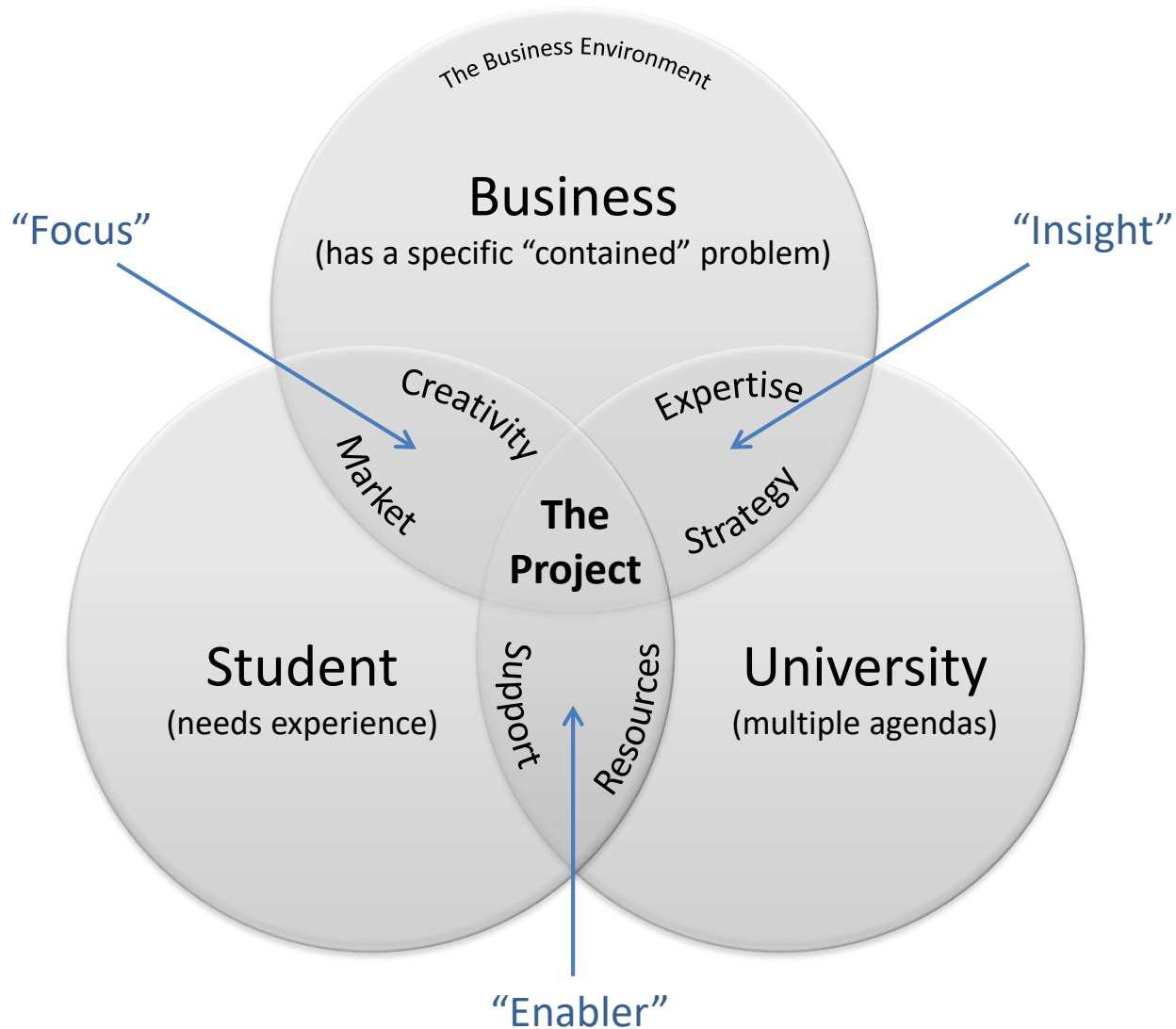
The company (Halo) is an SME and highly specialised manufacturer.

As such they could not provide a “traditional” design placement...

- No existing “in house” **designers**
- No specialist **facilities** or equipment to support design activity
- No **expertise** to drive the process

So if we were going to offer a placement, we needed to find a new way

# A New Type of Placement ?...



# Case Study: Student Placement

Brief: Cosmetic update of  
the Solo Fire Helmet



# Case Study: Student Placement

- 4 students invited to apply
- Mārtiņš Ēlerts secured the 5 wk placement (extended to 12 wks)

The project involved,

- Concept Sketch Development
- CAD Visualisation
- Concept “Soft” Models





# Case Study: Student Placement

Mārtiņš worked at the university

Supported at Teesside by

- **Peter Reid**, design mentoring, NPD strategy & project management
- **Mark Beckwith**, CAD and Rapid Prototyping
- **Alistair Scott**, model making

Regular (weekly) meetings at the company with the Directors



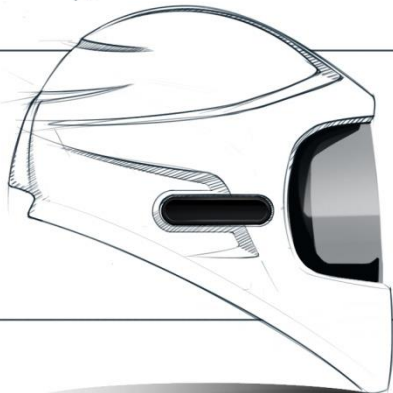
# Initial Sketches

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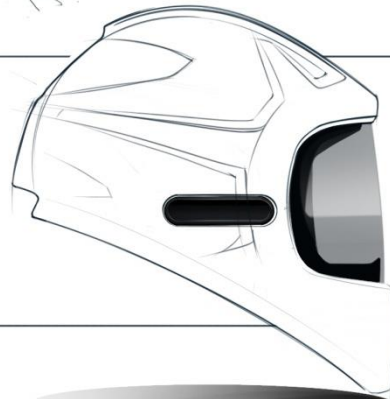


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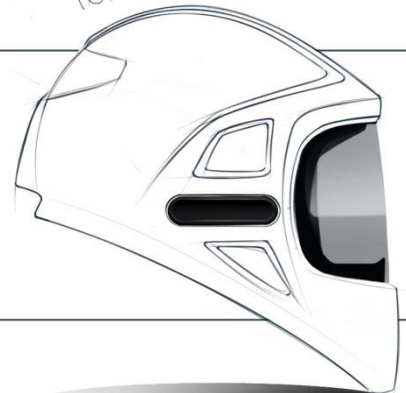


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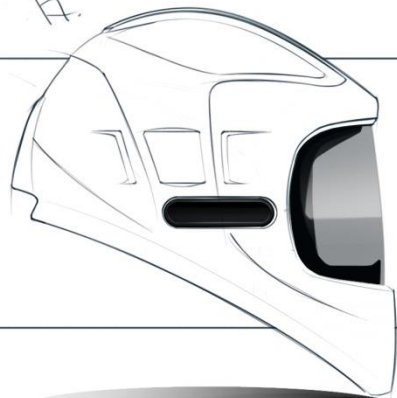


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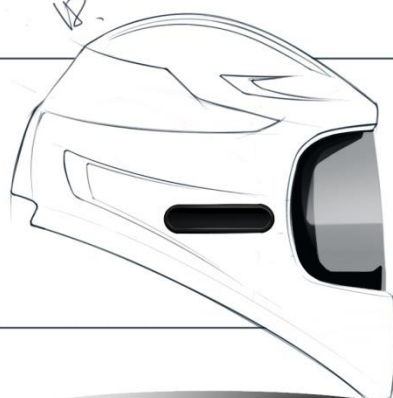


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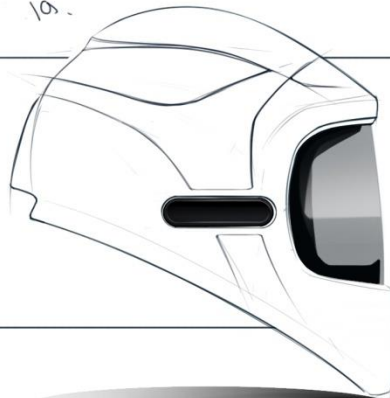


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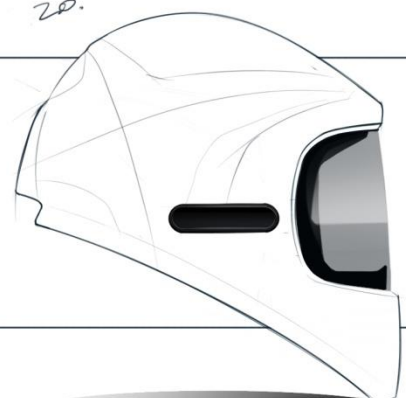


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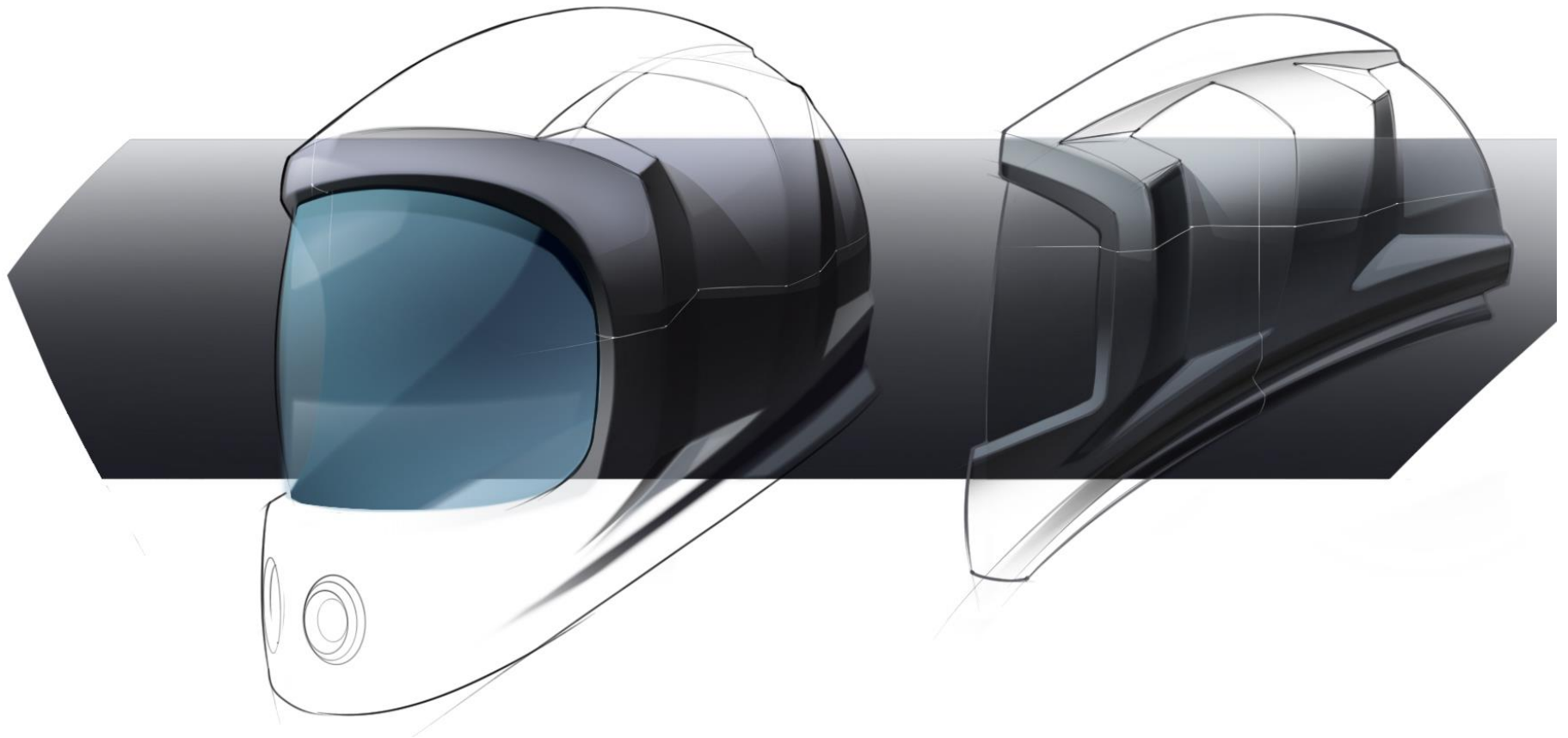


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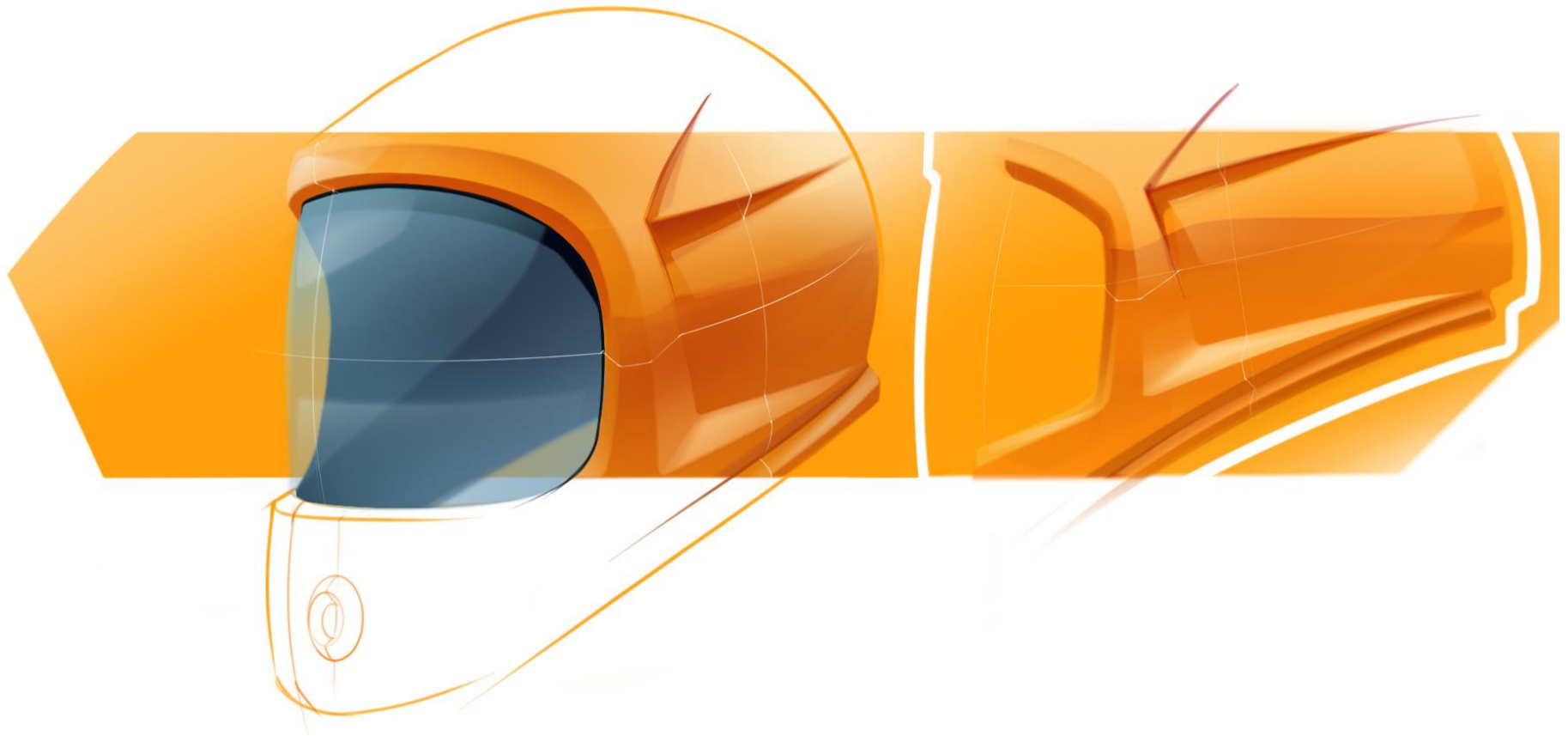
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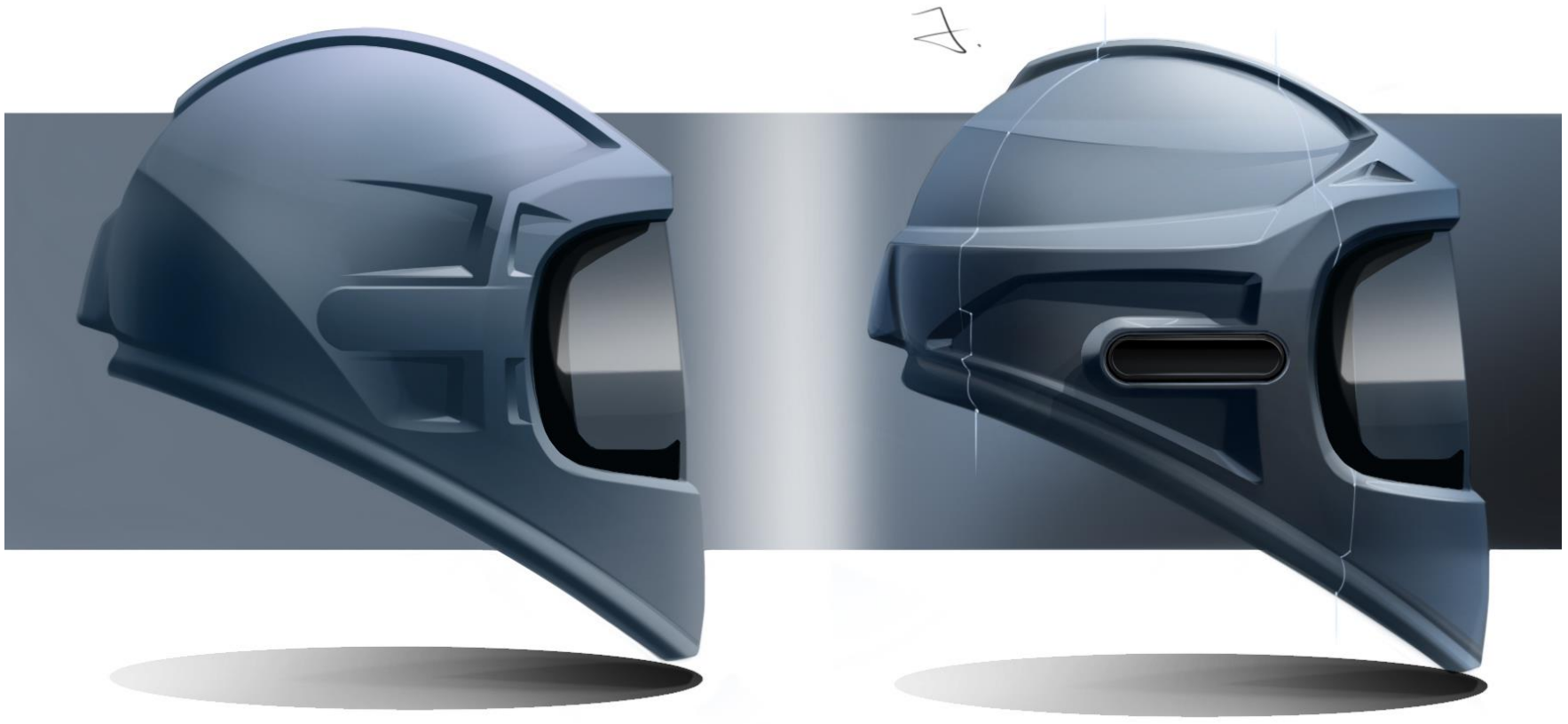
# Presentation Sketches



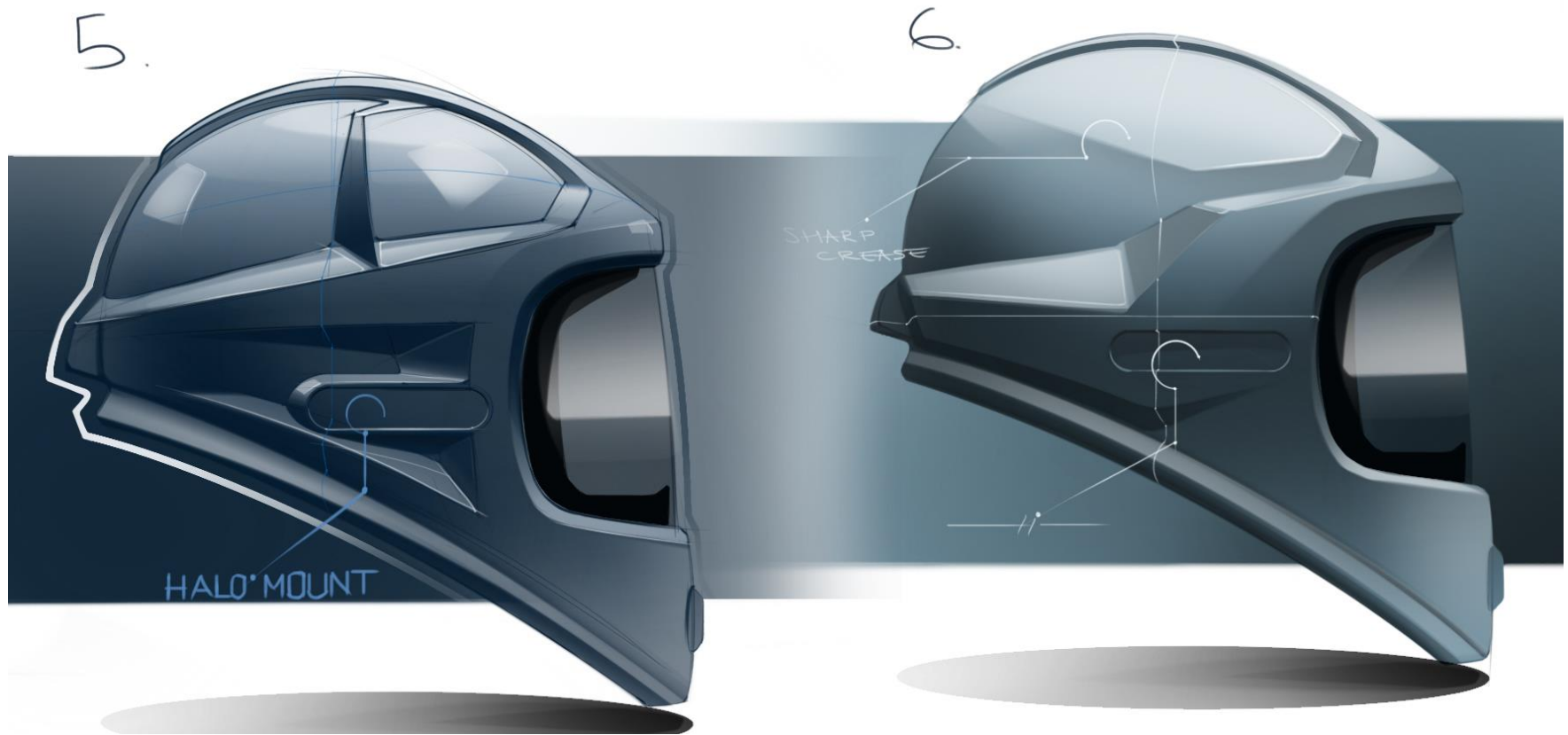
# Presentation Sketches



# Presentation Sketches

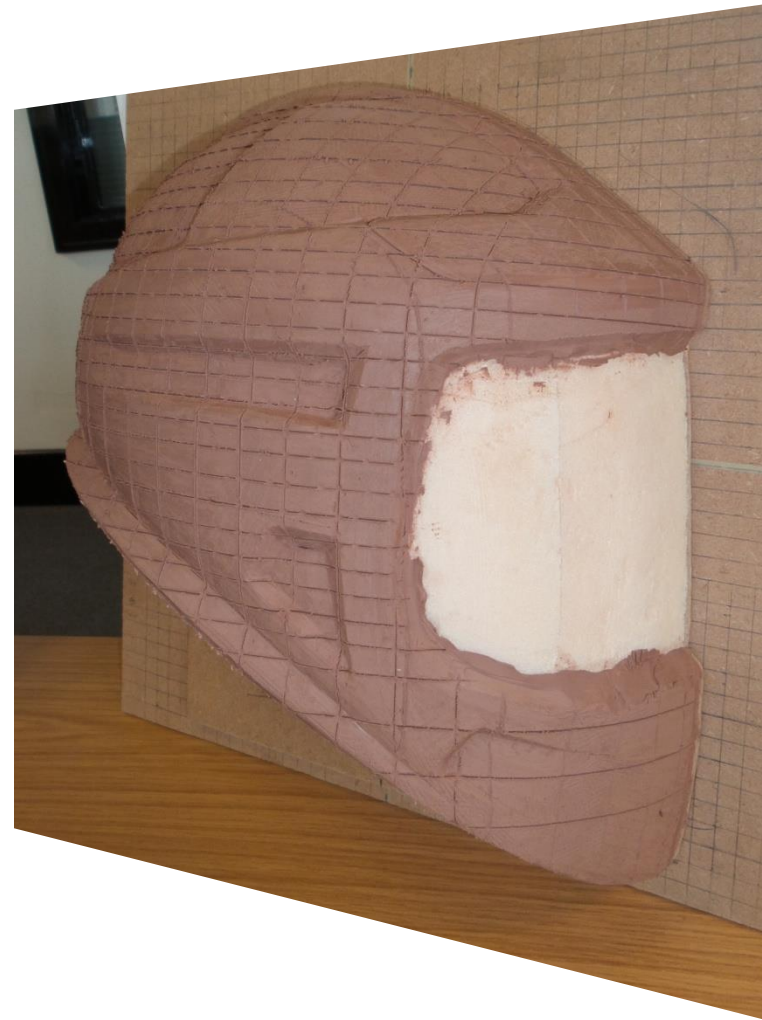


# Presentation Sketches

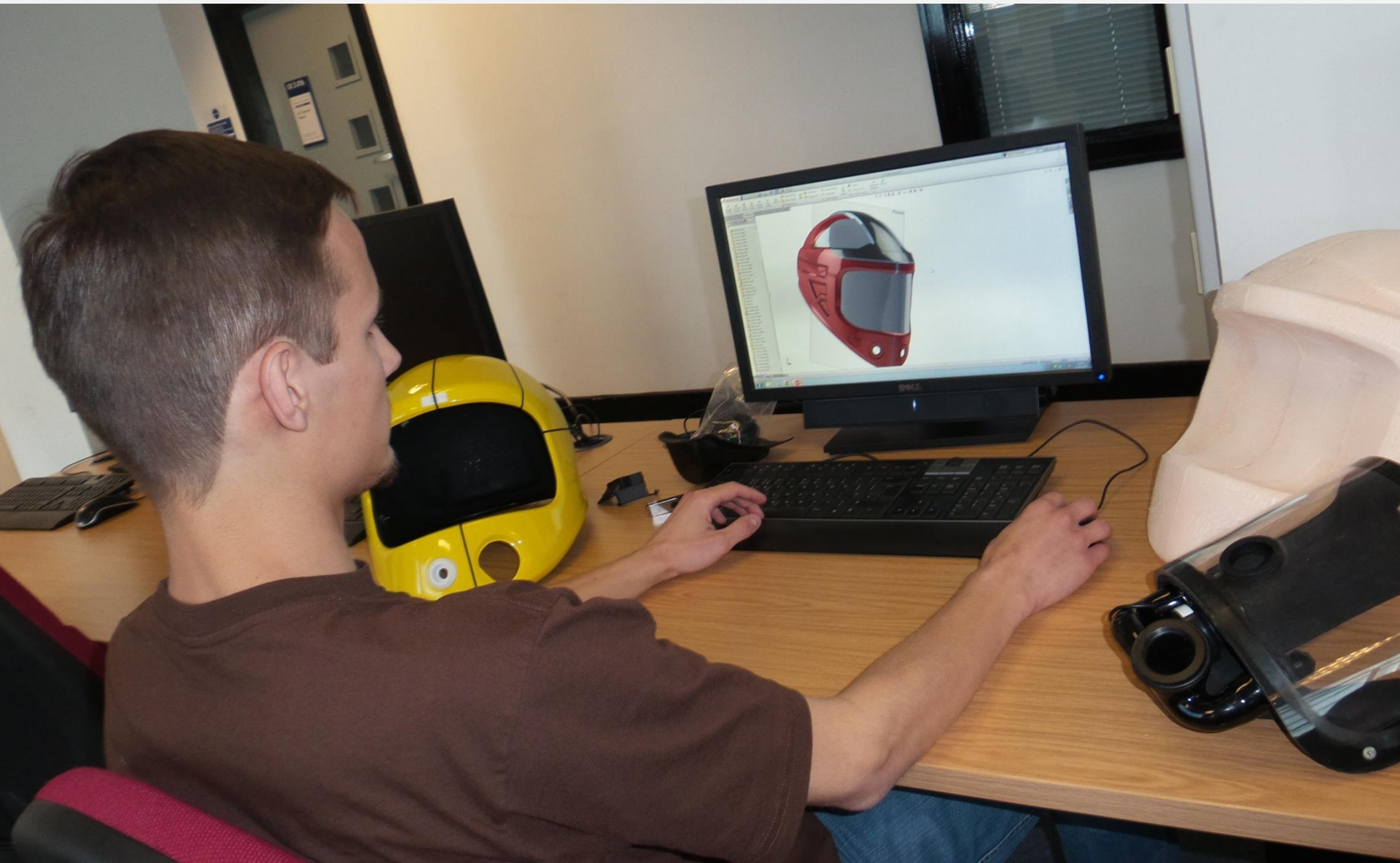




# Clay Sculpting



# CAD Development





# CAD Visualisations



## Design Strategy:

- **Reduce** unit production cost
- **Increase** unit value and price
- **Improve** manufacturing ease



# CAD Visualisations

“Euro”



“Peak”



“Mohawk”



## Design Strategy:

- Cost effective “tailored” product variants
- Recognises variations in International Markets
- Functional improvements
- Potential for price premiums and added value

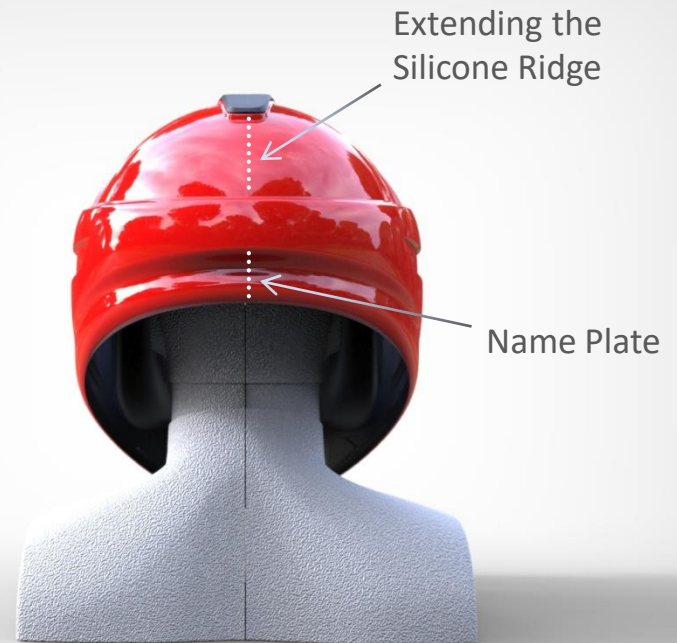
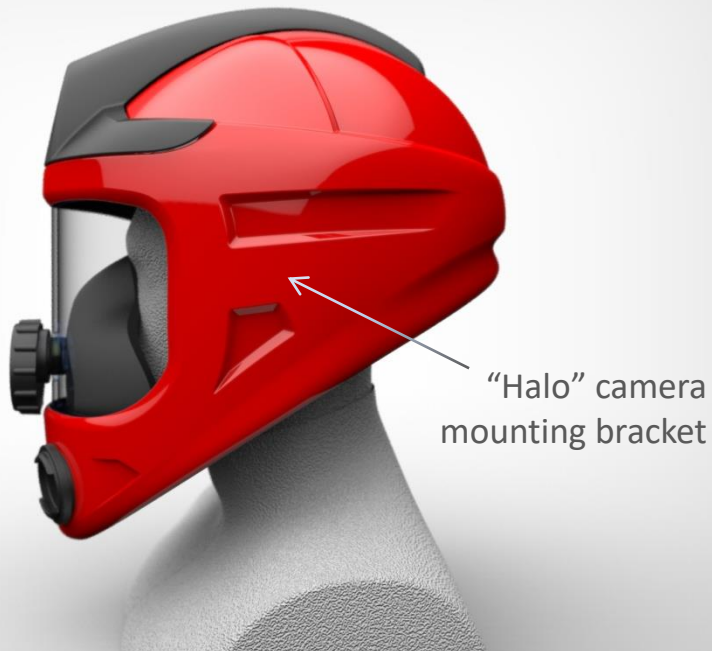
# CAD – Refining the Form



# Rapid Prototyping - Styrene



# CAD – Refining the Form



## Product Review Meetings:

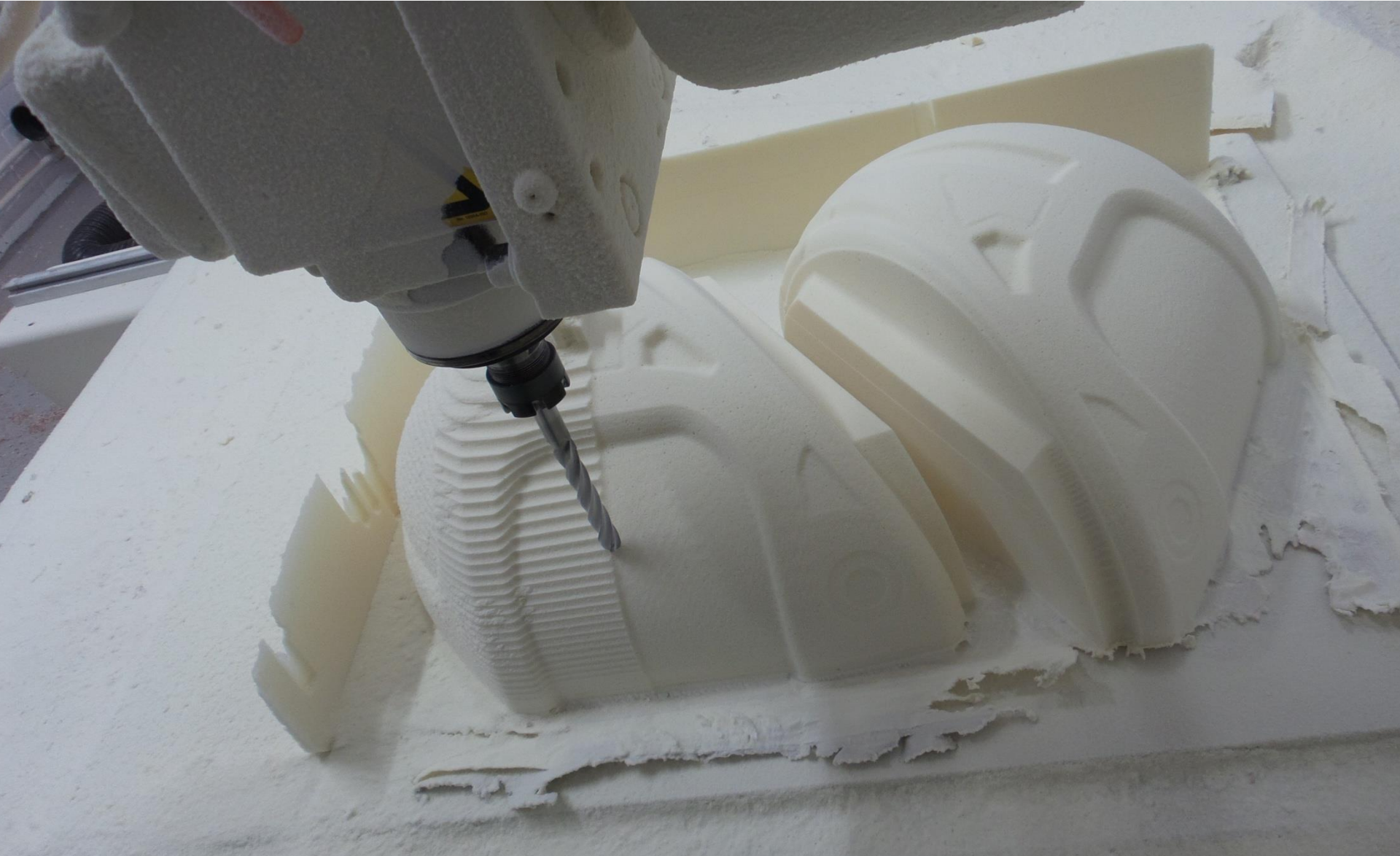
- Acted as “touch points” for future design direction
- Refined thinking and identified detailing issues and possible solutions



# CAD Visualisations



# Rapid Prototyping - Urethane



# Rapid Prototyping - Urethane





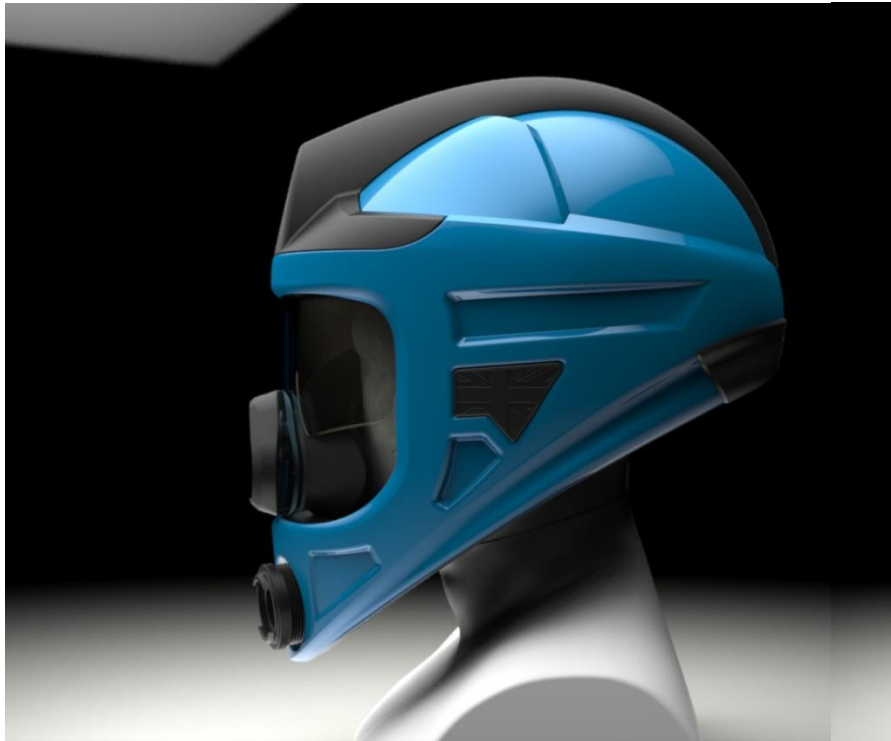
# Rapid Prototyping - Urethane



# CAD – Final Visualisations

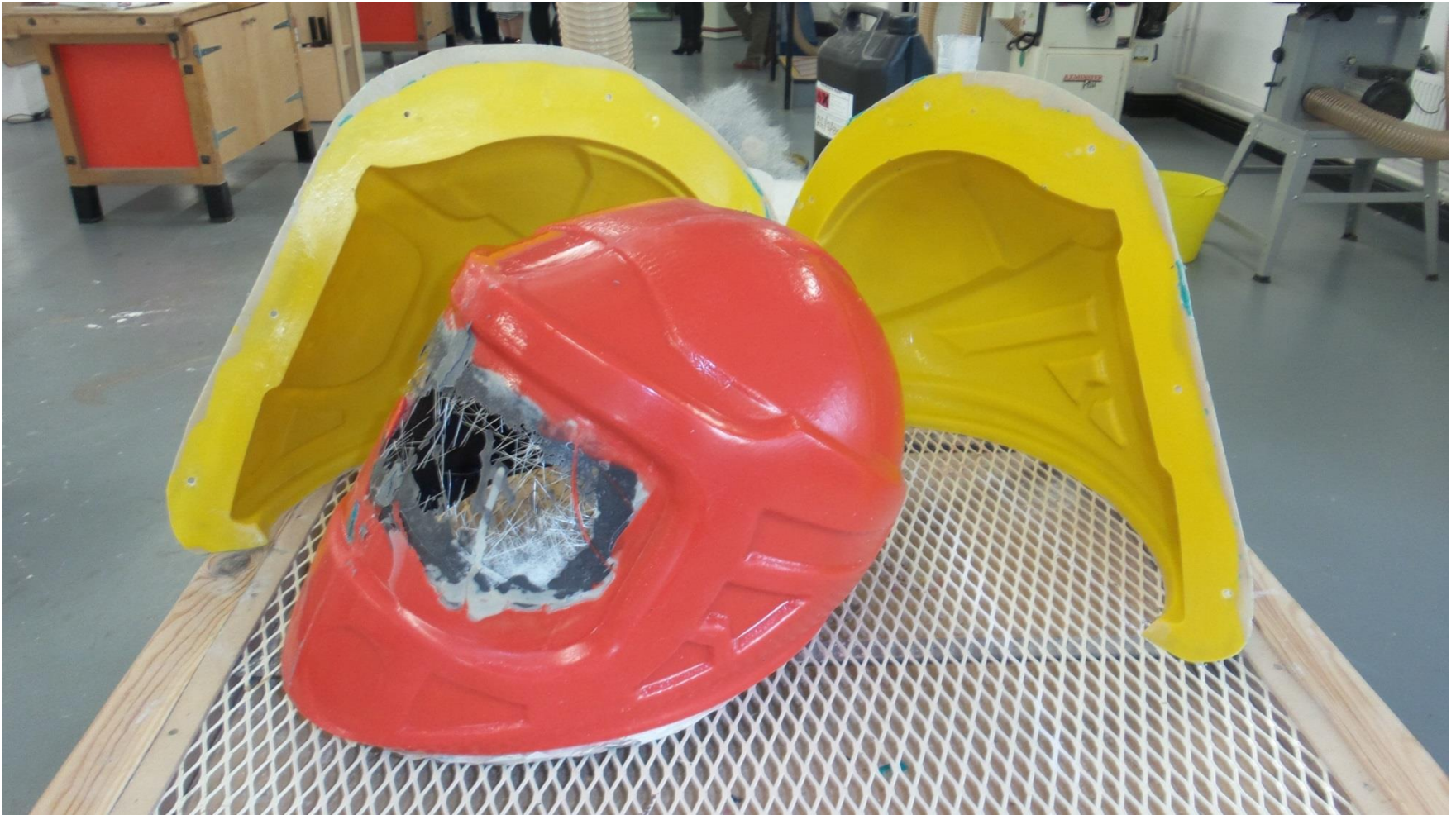


# CAD – Final Visualisations





# Prototyping – GRP Shell



From this...

...to this



...in 12 weeks



# Shared Benefits

## Students

- Live project benefitted 21 students
- Factory visit enhanced knowledge of business and manufacturing in the SME sector
- Direct contact and Feedback from industry directors at key project stages
- Two special student prizes awarded
- One paid summer placement for Yr 2 student Martins Elerts
  - Initially 5 weeks (extended to 12 weeks)
- Agreement from K2 Thermal Imaging to sponsor students to attend New Designers Exhibition, London (July 2015)



# Shared Benefits

## University

- Example of us supporting the regional economy and business community
- Demonstrates what we can do
- Offers press/PR opportunities
- Case Study
  - New teaching materials and anecdotes
- Maintaining currency in the business world
- Business networking
- Piloted an alternative model for Student Placements
  - How could we resource this?
  - Sources of funding to support and expand?
- Enhances our recruitment
  - Gives us a good story



# Shared Benefits

## Company

### Expected

- Live project stimulated discussion on business development and how their technology might be applied to alternative uses and markets
- A new “face lifted” product concept

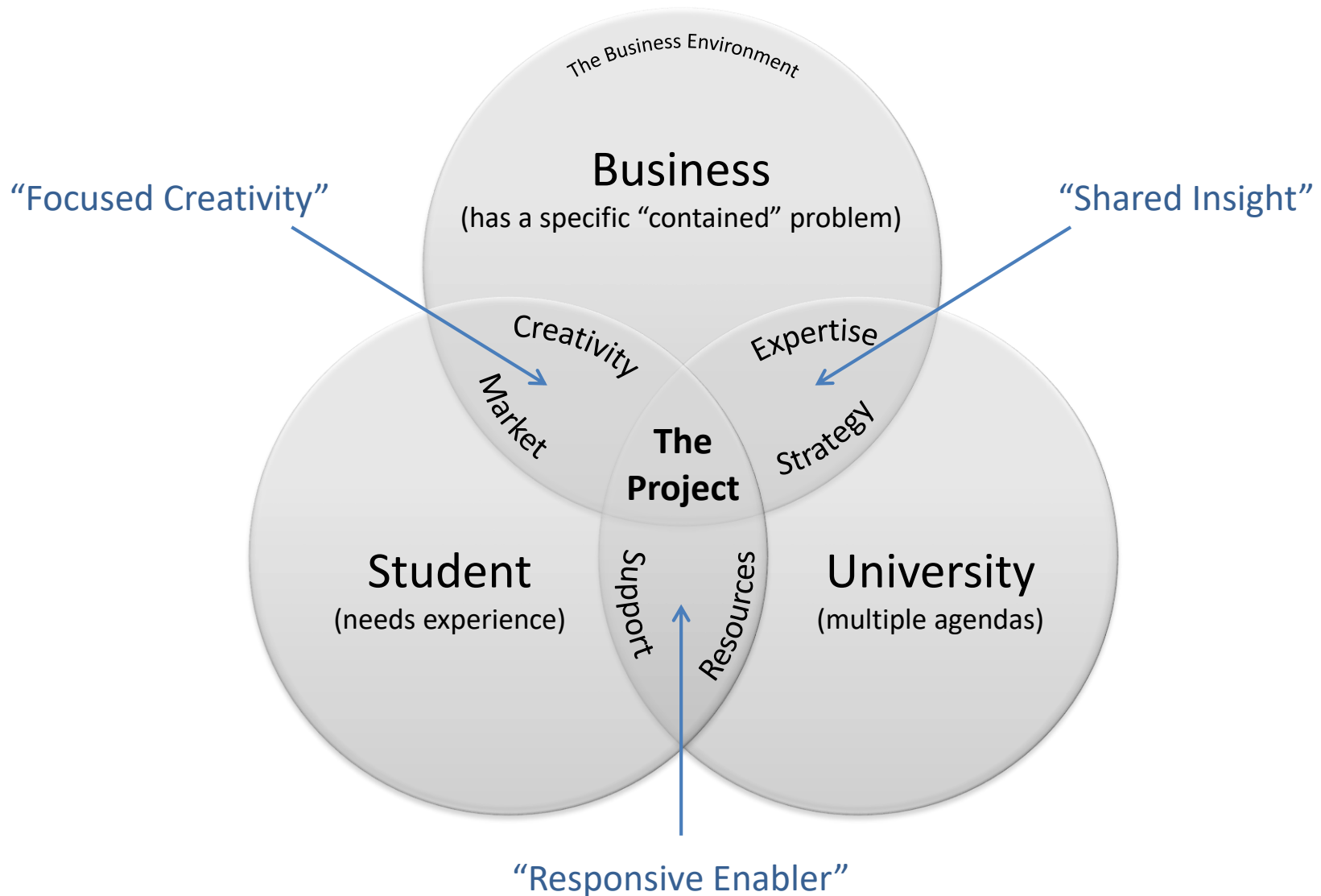
### Unexpected

- We exceeded their expectations
- Product variants to expand markets
  - (Euro, Peak, Mohawk)
- We identified things that they had not considered
  - Business/market opportunities
  - Cost saving and value added
- New product near market readiness





A Three way win: Collaborative Design as a mechanism for successful Knowledge Transfer & Exchange, enhancing student employability and adding value to the student experience



# Shared Benefits

## Where Next

- Currently running another live project with yr 2 students investigating new opportunities for Thermal Imaging
- Investigating options for future collaborative working
  - Considering funding and shared I.P. models for this
- Future sponsorship discussions
- Future placement discussions



Any Questions?



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